
ARTÍCULOS DOCTRINALES / ARTICLES

AD HOC ACCOUNTING AND ACCOUNTABILITY FOR THE LOCAL GOVERNANCE OF AN EPIDEMIC CRISIS: THE YELLOW FEVER IN CÁDIZ IN 1800**Mariló Capelo**

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Abstract: This paper aims to extend the knowledge about how *ad hoc* accounting and accountability practices arose and were used in the past to face a situation of crisis in the context of local government. With this purpose, it addresses a health public problem in a specific context, the yellow fever epidemic in Cadiz in 1800. The specific characteristics of the setting, where acquaintance with accounting was usual, allow setting the following specific objectives: (1) to explain the genesis of the accountability systems and the accounting itself used for local government management of the epidemic and (2) to explore the versatility and plasticity that accounting background provides to the records produced in this context.

To accomplish them, primary sources as well as publications of the time have been considered. The evidence obtained shows that both an accountability system and a basic bookkeeping system influenced by the local accounting and medical background arose in the local context. Moreover, the findings suggest that the generalized accounting background promoted the self-serving use and interpretation of the records by local government, local Church, trade association and medical profession. The value that local society attributed to accounting books was important in this sense.

Keywords: *Local management, Enlightenment, Traders, Church*

CONTABILIDAD AD HOC PARA LA GESTIÓN MUNICIPAL DE UNA CRISIS EPIDÉMICA: LA FIEBRE AMARILLA EN CÁDIZ EN 1800

Resumen: Este trabajo pretende contribuir a un mayor conocimiento acerca de cómo se generaron y se utilizaron en el pasado prácticas *ad hoc* de registro y de rendición de cuentas en el contexto del gobierno local para hacer frente a una situación de crisis. Para ello, se considera un problema de salud pública en un contexto concreto, la epidemia de fiebre amarilla en Cádiz en 1800. La particularidad del contexto estudiado, donde existía un gran bagaje contable, contribuye a que se establezcan como objetivos específicos del trabajo los siguientes: (1) explicar la génesis de los sistemas de rendición de cuentas y la propia contabilidad utilizados en la gestión municipal de

una epidemia y (2) explorar la versatilidad y plasticidad que la perspectiva contable aportó a los registros generados en este contexto.

Para ello, se consideran fuentes primarias y también publicaciones de la época. Las evidencias obtenidas muestran la emergencia en el ámbito local de un sistema de rendición de cuentas y de registro contable que recibe influencias del acervo contable y médico de la ciudad. Asimismo, sugieren que este acervo contable permite un uso e interpretación interesados, tanto por parte del gobierno local como por la Iglesia, los comerciantes y la profesión médica. El valor que la sociedad local confiere a los libros contables colabora en este sentido.

Palabras clave: *Gestión municipal, Ilustración, Comerciantes, Iglesia.*

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Introduction

During the eighteenth century, Enlightenment had attracted the attention of political power over the population and governments needed to develop an increasingly quantitative knowledge about it (Foucault, 1982) that would allow them to control population and constantly increase its usefulness. The numerical expression of its qualities contributes in this sense by facilitating that population is the object of “surveillance, analysis, intervention, modification” (Foucault, 1980, p. 171); the role of accounting in achieving political objectives in specific populations having been shown by several studies (e.g., Álvarez-Dardet, Baños and Carrasco, 2002; O'Regan, 2010; Gomes, Carnegie and Lima, 2014). A fundamental issue for the exercise of power over the population is health, which stands out as an object of political concern, in which medical activity acquires an increasingly marked social dimension (Foucault, 1999a). In this regard, epidemics stand out as an extraordinary threat to public order that tested the capacity of national and local governments for the coordinated management of populations and their resources, boosting, on the one hand, the emergence of methods of monitoring and recording used in urban medicine (Foucault, 1999b) and the use of mathematics and statistics in order to discover regularities in population problems such as epidemic diseases. To do this, procedures for entering these numbers, ways of collecting and presenting the collected data, are introduced, subsequently sending this information to the decision-making centres (Miller and Rose, 1990; Miller, 2001). According to Sargiacomo (2015), extreme situations for the population –such as those caused by natural disasters– favour the emergence of particular calculation practices, including accounting, which enable exceptional government to be exercised thanks to their registration and classification schemes; these particular practices are built on existing ones, appropriating or modifying them in order to deal with the emergency and its consequences. On the other hand, epidemics also favour that accounting professionals or experts emerge as intermediaries between power and the individual (Jeacle, 2015).

In the Spanish case, with the irruption of the Enlightened thought at the end of the eighteenth century, great importance was attached to reason and public interest, resulting in the introduction of state reforms to regenerate the economy (Palacio, 1964) as well as the implementation of a new urban order based on collective hygiene and asepsis (Jori, 2013a). After its stagnation in the previous century, the urban population in Spain experienced an important growth in this century, becoming to be 11.1% over the total population in 1800 (Cardesín and Mirás, 2017), which caused a significant deterioration of the hygienic and habitability conditions of the cities. In fact, cities were perceived as one of the most dangerous environment for the population (Foucault, 1980), thus becoming one of the preferred areas for the implementation of the health policies promoted by Enlightened leaders (Jori, 2013b). Although the health policy was very conditioned by the predominant approach in the medical-scientific literature of the time, which resorted to environmental factors to explain the origin and evolution of pathological processes, both in the national and municipal levels there existed both awareness regarding the problems of the cities and concern to improve the health conditions of the population (Jori, 2013a; Feria, 2017). From an urban health perspective, home care was preferred to hospital one, since hospitals were seen as death centres, due to their high mortality rates caused by the scarcity of resources for the sick, poor hygienic conditions and overcrowding (Ramírez, 2011; Feria, 2017). Although a political entity had been appointed for governing public health, throughout the eighteenth century there was not a coherent body of health regulation in Spain at national level (Hernández-Villalba, 2014). Moreover, doctors – still scarce– despite being increasingly interested in the well-being of society as a whole, and even researching in specific fields such as hygiene and epidemiology (Jori, 2013b), were just starting to integrate into a profession whose prestige in Spain was beginning to be built (Bustos, 1983).

These same circumstances are present in the port city of Cadiz in 1800 when an unknown disease¹ broke out, such as yellow fever, later spreading throughout Andalusia (Southern Spain). In 1786, Cadiz has 71,499 inhabitants, including 2,136 foreigners –and also an estimated floating population of around 3,000 soldiers–, being the fourth or fifth city in Spain by population according to different sources, along with Madrid, Barcelona, Valencia and Seville (Ramírez, 2011; Cardesín and Mirás, 2017). The city, an important economic and social hub of the time for being a strategic, logistic and instrumental enclave for commercial relations with the American colonies, hosts an important transit population that demands good management and control, especially in cases of health emergencies (Ramírez, 2011). Because of the epidemic, in about three months between 7,300 and 11,000 people² die in the city, and both state and local authorities promote a system that, on a quantitative basis, allows managing the impact of the epidemic on the population. Thereafter, countless demographic-health statistics related to the disease arise that, in addition to controlling the epidemic, permeate the printed discourse of subsequent decades. Considering the situation outlined above, and mainly based on the primary sources obtained from the Archivo Histórico Municipal de Cádiz (Municipal Historical Archive of Cadiz; hereinafter, AHMC), as well as from some reports

¹ Although derived from commercial relations with America and its climatic characteristics, the city had already suffered several epidemics during the eighteenth century (Nadal, 1984).

² The exact numbers differ according to the different sources that will be discussed later: for example, 7,387 deaths are reported in the General Statement, while 11,283 are listed in the Statement of deceased. Surely, the correct amount will be between the two, it not being possible to more accurately determine the number of deaths due to the epidemic.

immediately published after the Cadiz epidemic, this study proposes two main objectives: (1) to explain the genesis of the accountability systems and the accounting itself used in the municipal management of an epidemic and (2) to explore the versatility and plasticity that the accounting perspective brings to the records generated in this context.

The research contributes to the literature in several ways. First, it extends accounting knowledge about extraordinary accounting practices in exceptional government situations (Sargiacomo, 2015) such as the management of an epidemic. The evidence obtained shows the emergence of an *ad hoc* municipal accounting and accountability system that, on the basis of control practices previously assumed and widely extended in Europe to contain epidemics (Foucault, 1999b), received influences from the accounting and business culture prevailing in the city, the recording practice of military hospitals and the medical profession. Likewise, this research suggests that in these emergency situations, accounting can be used for different particular purposes even different from those initially planned (Fahlevi et al., 2019); the own accounting heritage of the city, together with the value that local society in general attributed to accounting books as something natural in their lives, allowed for an interested use and interpretation of accounting information, both by the local government and by the Church, traders and medical profession. Secondly, the work has made it possible for us to advance in the knowledge about the use of accounting in population management in more specific contexts such as local administration, thus contributing to fill the existing gap regarding how these accounting practices were developed and used in these settings (Gomes and Sargiacomo, 2013). Thirdly, it shows, on the one hand, the complex interrelationship existing at this time between various fields related to public health such as military hospitals, local authorities, religious organizations and the medical profession, which constitutes an important research interest in history (Geltner, 2019) and, on the other hand, that accounting as a social practice (Miller, 1994) influences and is influenced by this context.

The structure of the paper is as follows. After this introduction, the historical context is explained. Next, the work analyses the city of Cadiz and the main events associated with the yellow fever epidemic of 1800. Later, the paper focuses on the municipal information system developed around this epidemic and its use in accounting discourse. Finally, the analysis is performed and the conclusions are drawn.

Historical context

During the eighteenth century, the administrative organization of the Spanish territory underwent an intense process of homogenization boosted by the central government for the sake centralization and uniformity. New positions were created for the government of the territories on behalf of the central authority. Captain-General who were in charge of representing the King as well as of ensuring the public order and the *Corregidores* with responsibilities regarding power and justice stood out among these new figures (Rubín, 2008). Although municipal jurisdiction used to focus mainly on issues related to the material needs of the population -such as food- and public order, at this time state regulations were enacted about urban policy with had impact on healthy matters –for instance, hygiene and burials– and urban layout and embellishment. In a similar way, several cities, including Cadiz, also developed municipal ordinances related to hygiene and public health (Sambricio, 1991; Cardesin and Mirás, 2017; Jori, 2013a). Moreover, in 1745, the State began to intervene in the local management, by adapting the first accounting regulation intended to control the local finances

in a period of chronic deficit (Campos and Sierra, 2006). Various studies have addressed the subsequent evolution of the government regulation aimed at controlling the municipal finances and its specific implementation through budgetary accounting (Campos, 2009, 2010; Campos and Sierra, 2006; Del Moral, 1996; Rubín, 2008; Sierra and Campos, 2009).

At this time, cities were seen as unhealthy places in comparison with the countryside (Blasco, 1991) blaming them for being a focus of rottenness. Although the emphasis of Enlightenment on the welfare of population was contributing to an incipient development of an urban hygiene, in the Spain of 1800 there existed no health policy at national level. Most of the government regulations were enacted due to epidemics -albeit some more structural rules were promulgated- being the Supreme Health Board, founded in 1720 after the epidemic of Marseilles, the political-health agency that became a point of reference for the Spanish Health Administration. Its main functions were coordination when facing epidemics and the enactment of regulations. In the eighteenth century, this focus of the Spanish health policy in the defence of population against epidemics, with particular impact on coastal areas, resulted in the establishment of delegations of the Supreme Health Board in cities as Barcelona, Valencia or Cadiz (Jori, 2013a; Varela, 1998). Afterwards, the successive waves of yellow fever epidemic in 1800, 1804 and 1810, aroused the interest of the government -in particular during the Constitutional debates in Cadiz- in a national health policy (Hernández-Villalba, 2014).

In the eighteenth century, Spain had insufficient health professionals. According to the census of 1797, there was one doctor or surgeon for each 774 inhabitants, with the greatest number of them being concentrated in the cities. To meet this need, in 1748, the first College of Surgery of Spain was founded in Cadiz sponsored by the King Fernando VI, this College being linked to the Royal Hospital already existing. This centre became the most prestigious institution for the medical-surgical training in Spain in those days (Feria, 2017), being a model of reference for other colleges founded later in 1760 in Barcelona and in 1787 in Madrid (Bustos, 1983). The backing of the King helped to boost doctors and surgeons, who until then were socially equivalent to barbers, bloodletting and charlatans.

Under these circumstances, the outbreak of an unknown epidemic as the yellow fever in Spain in 1800, provoked that in three months roughly 14,000 people died in Seville, between 7,300 and 11,000 people in Cadiz and about 10,000 in Jerez; amounting to more than 60,000 the total of people deceased in Andalusia (De María, 1820). On September 25th the government appointed a commission made up of five doctors, one of which was Alfonso de María, professor of Medicine and Surgery, from Cadiz. Moreover, three academics in Medicine appointed by the French Republic came from Montpellier. Later, the Spanish government named Pedro de Aréjula, also belonging to the College of Surgery of Cadiz, as inspector for the epidemic in Andalusia. Once the epidemic was extinct, cities as Seville and Cadiz published their respective statements by summarizing the damages caused by the disease in their territories.

Cadiz and the yellow fever epidemic in 1800

At the end of the eighteenth century, Cadiz was still the main Spanish commercial port, being the central hub of the overseas businesses. Traders from all over the world settled in Cadiz, by joining the Trade Association of the city³ (*Consulado de Comercio de Cádiz*), these traders

³ At this time, businessmen joined this institution aiming at defending their own interests, by placing special emphasis on the regulation of accounting practices (Hernández-Esteve, 1996).

showing being at the forefront of the commercial practices (Capelo, 2007; Capelo, Araújo and Álvarez-Dardet, 2015). Liberalization measures introduced by the government from 1766 onwards facilitated that traders had access for the first time to municipal positions, increasing their influence over local government, until then occupied by people who accredited the due social recognition (Bustos, 2017).

Cadiz was an enlightened city with many theatres and private picture galleries, where the burst of journalistic activity in the late decades of the eighteenth century had a big impact, giving rise to chats and reading rooms that facilitated the diffusion of the news. At this time, Cadiz stood out as the provincial capital with the highest number of subscriptions in Spain (Larriba, 2013). Three newspapers were published in the city between 1780 and 1791 (Sánchez, 2007). This pleasure for information, familiarity with accounting and the emphasis on rationality coincided with the fact that several charities recently founded –such as the Hospice, the Home Hospital Care and the Relief Board– published accounting statements about their activities. Reputable local traders were members of the boards that managed these charities (see Capelo, 2014; Araújo, Capelo and Núñez, 2019).

In 1792, the guidelines of the Royal Academy of Fine Arts of San Fernando had been materialized in the Police Ordinances approved by the local government of Cadiz in 1797, becoming reference standards for the enactment of other regulations in Spain (Cirici, 2010). Its aim was “the preservation of the population’s health”, by setting a section of ‘Public Health’ where the regulation reminded that the municipality had installed plumbs for the drainage of sewage and regulated the extraction of garbage. As a novelty, the regulation introduced restrictions related to the height of new buildings, seeking the needed ventilation of the streets in a “narrow city with high population” (Ordenanzas de Policía, 1797, BNE, R/60261(25), p. 14). Regarding the much-feared foci of contagion, and referring specifically to hospitals, prisons and hospices, these ordinances stated the following:

Architects will take special care by locating these public building in a well ventilated area, separated from the population, as they should enjoy of pure air and not to communicate to the public the unhealthy steams that regularly emanates from these houses; these having been located until now in the centre of the population because of ignorance (Ordenanzas de Policía, 1797, BNE, R/60261(25), p. 20).

During the epidemic of 1800, there existed in Cadiz two religious hospitals and two military ones, being the oldest of the military ones linked to the Surgery College. The involvement of Cadiz in subsequent wars due to its commercial importance had provoked the settlement of army hospitals, permanent and provisional, both in the city and in the bay where it is located, army hospitals being better organized and headed than other similar institutions (Ramírez, 2011; García-Cubillana, 2018). Moreover, as an alternative to the internment in hospitals, in 1792 the Home Hospital Care had been founded by the local Catholic Church in Cadiz, aiming at giving in-home assistance. This charity was highly involved in relieving poor people during the yellow fever epidemic of 1800 (Capelo y Araújo, 2018).

The major role of Cadiz in overseas trade caused the entrance of the yellow fever epidemic coming from America at the beginning of August 1800, later expanding through Andalusia. This provoked a great confusion which was aggravated, on the one side, because of Cadiz blockade by the English army (Conte y Lacave, 1976; De Castro, 1982) as a result of the military conflict that Spain had with England since 1796. On the other side, because since July 1800 the positions of Captain-General of Andalusia and Political and Military Governor of

Cadiz were vacant; this latter being responsible for enforcing the will of the king (Eissa-Barroso, 2016).

From the end of August, the local authorities started to request the collaboration of doctors in statistical works, while these felt overwhelmed due to the increase in the number of sick people. According to one of the doctors commissioned by the government, forty professionals linked to the surgery College passed away in 1800 (De María, 1820). Nevertheless, several publications pointed out the lack of commitment from the doctors. An official edition with a great impact questioned the role performed by the doctors in Cadiz; more specifically, the report published in Madrid in 1800 by the Royal Printing, entitled *Reflections on the epidemic that is plaguing Cadiz and means to deal with a pest (Reflexiones acerca de la epidemia que reina en Cádiz y medios de atajar una peste)* expressed openly that “in issues of names they [the doctors] devoted a time that they should absolutely dedicate to pathological, anatomical and meteorological observations” (p. 6). In a similar way, another publication, in this case anonymous, entitled *Reflections on the epidemic that Cadiz and surrounding towns suffered at the end of 1800 aimed at the professors in Medicine by a public welfare lover (Reflexiones sobre la epidemia padecida en Cádiz y pueblos circunvecinos a fines del año de 1800 dirigidas a los profesores de medicina por un amante del bien público)* edited in Cadiz in 1801, noted:

¡[...] you ministers, that should always be of Healthy and Preservation, some of you have been of destruction and death in this time! [...] What would feel a poor sick in his/her bed threatened by destruction when s/he sees that the doctor who arrives at the door of his/her bedroom -in whom s/he has a fragile rest of hope- does not dare to cross it in order to give him/her the relief of his art? How have you been able to ignore the voices of the humanity? (p. 17).

The management of the epidemic and the new municipal information system

In accordance with the centralizing movement promoted by the central government, as soon as the government received news of the increasing number of people died in Cadiz, it requested daily data regarding the number of deceased; existing records in this sense at least from August 25th. Later, on September 5th 1800, the Council of Castile enacted a Royal Order asking for information about the amount of people who had become ill, those convalescent and those who had died because of the epidemic, by classifying them by sexes and ages.

The local government reacted making its own decisions to increase the information collected, contributing to a better knowledge of the magnitude of the epidemic at any time as well as to prevent its spreading and mitigate the damages. This would have been impossible without a campaign of funds raising carried out *ex profeso*. This package of messages –later compiled in the document named *Measures taken by the City Council because of the epidemic suffered in 1800 (Providencias tomadas por el Ayuntamiento con motivo de la epidemia padecida en 1800)* preserved in the AHMC- required the design of an information system that facilitated the control of the two issues abovementioned: the public health and the funds collected and expensed with that purpose.

The control of the public health

Traditionally, parish priests⁴ were in charge of keeping records of the deceased. During the epidemic, they did not only continue with their usual role, but also started to report to the local government about both the number of deceased and the reason of the death. These figures were daily sent to the central government, together with the data about the number of deceased belonging to the army. Later, these amounts were included in the General Statement about the effects of the epidemic until October 31st 1800 (henceforth General Statement of Cadiz) – prepared and published aiming at complying with the Royal Order of September 5th –in the statistics about deceased disaggregated by each of the parishes, religious institutions and hospitals, where the figures are given for each age range and sex (Illustration 1). The analysis of the figures, included in the same document, noted that roughly 79% of the deceased were male while 21% were female. Next, the analysis focused on the age ranges and sexes, concluding that the main damages in the male population affected to those men between 21 and 40 years. The higher rate of mortality among male was related to the weight of the floating military population in Cadiz. This fact is evident in the same statistics when observing that 35% of the men passed away in military hospitals. The information contained in the General Statement of Cadiz probably went beyond the city limits, as is shown by the exact knowledge about this matter exhibited by a contemporary monk belonging to a Sevillian cloistered convent⁵. In the report prepared by the city of Seville (Aréjula, 1806), entitled *General Statement of the souls that formed this city [...]* (henceforth General Statement of Seville), published before than the General Statement of Cadiz, the data about deceased people was much less detailed. The statistics that in Cadiz were elaborated for parishes, religious institutions and hospitals, by specifying sexes and age ranges; in Seville were disclosed by distinguishing only if they deceased in a convent, hospital or home address. No data was available in this document about ages or sexes. In the discourse that the local government printed about these figures, it did not conceal the lack of trustworthy records about the effect of the epidemic when they wrote “[this government] believes that is highly probable to have lost 11,103 men and 3,672 women”. The document itself noted that the local government had not been able to find out these figures “exactly”.

⁴ According to Calvo, Castro and Granado (2007), parishes at this time performed a crucial accounting role, as they not only recorded the deaths but also generated a huge amount of documentation related to their management and accountability.

⁵ “Around mid-August the disease that was called epidemic started in the city of Cádiz: more than 7,000 people passed away because of this [...] and from this city the contagion spread to Isla de León, Puerto Real, Puerto de Santa María, Jerez de la Frontera, Lebrija, Utrera, Dos Hermanas and other towns, causing more damages in ones and less in others, being common to all of them the death of the youngsters and the smallest number of deceased among women than among men” (Grey friar Juan Francisco Muñoz, quoted in Pastor, 2011, p. 512).

Illustration 1. Statistics of deceased included in the General Statement of Cadiz.

DEMOSTRACION INSTRUCTIVA DE LOS SEXOS Y EDADES DE LOS FALLECIDOS, SEGUN relaciones firmadas por los Señores Curas, Prelados y Superiores de las Comunidades y Establecimientos piadosos, presentadas al Ayuntamiento.

Parroquias.	Hasta 10 años.		De 11 á 20.		De 21 á 30.		De 31 á 40.		De 41 á 50.		De 51 á 60.		De 61 á 70.		De 71 á 80.		De 81 á 90.		De 91 á 100.		Sin expres de edad.		Totales.	
	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.	Vs.	Hs.
La Sta. Iglesia Catedr.	50	29	98	27	158	56	96	46	53	22	40	22	37	16	13	14	.	.	.	.	.	.	545	230
Santiago.	10	8	15	8	23	6	19	7	11	4	7	2	5	5	4	.	.	.	.	.	.	.	41	96
Ntra. Sra. del Rosario.	43	19	57	14	118	10	78	25	43	16	29	15	19	10	7	6	2	5	.	.	.	.	395	120
San Antonio.	71	58	84	42	107	40	80	44	43	30	34	25	10	10	20	5	8	.	.	.	.	.	455	237
San Lorenzo.	128	139	117	73	123	38	102	39	61	45	57	48	38	34	23	23	6	.	.	.	.	.	747	451
Parroquia Castreña.	18	13	21	8	38	6	20	2	7	4	8	2	2	1	1	.	.	.	.	.	.	.	202	62
S. Joseph Extramuros.	20	11	9	10	30	4	17	7	16	3	7	7	6	2	5	.	.	.	.	.	.	.	116	44
Comunidades de Relig.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
S. Franc. Observantes.	.	.	3	.	14	.	3	.	.	.	6	.	.	.	.	.	.	.	.	.	.	.	.	27
San Diego Descalzos.	.	.	.	.	5	.	2	.	2	.	4	.	2	.	.	.	.	.	.	.	.	.	.	15
Capuchinos. . . . .	.	.	.	.	.	.	2	.	4	.	5	.	5	.	2	.	.	.	.	.	.	.	.	19
Mercenarias Descalzos.	.	.	.	.	3	.	2	.	.	.	1	.	3	.	2	.	.	.	.	.	.	.	.	12
Carmelitas Descalzos.	2	.	.	.	.	.	2	.	.	.	.	.	1	.	1	.	.	.	.	.	.	.	.	5
Santo Domingo. . . .	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
San Agustín. . . . .	.	.	.	.	2	.	1	.	.	.	2	.	1	.	.	.	.	.	.	.	.	.	.	6
San Juan de Dios.	.	.	2	.	3	.	.	.	.	.	1	.	2	.	.	.	.	.	.	.	.	.	.	8
Clerig. de S. Fel. Neri.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Idem de Religiosas.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Descalzas. . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Santa Maria. . . . .	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
N. Sra. de Candelaria.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Colegios.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
San Bartolomé. . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Santa Cruz. . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Establecimientos Píad.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2
Casa grande de Viudas.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	2
Idem antiguas. . . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Casa de Recogidas. . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1
Idem Niños Expósitos.	33	32	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3
Idem de Misericordia.	6	5	8	7	.	.	1	1	1	1	4	2	2	8	5	15	2	1	.	.	.	.	25	
Familia del H. de Mug.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	
Hospitales.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
San Juan de Dios. . .	6	.	250	.	368	.	143	.	100	.	62	.	.	.	36	.	7	.	4	.	.	.	1029	
Ntra. Sra. del Carmen.	.	.	.	48	68	.	110	.	30	.	.	.	.	.	.	.	.	.	.	.	.	.	264	
Real de esta Plaza.	.	.	.	.	510	.	1035	.	262	.	.	.	.	.	.	.	.	.	.	.	.	.	1802	
Segunda Aguada. . . .	.	.	.	.	67	.	143	.	45	.	.	.	.	.	.	.	.	.	.	.	.	.	255	
	460	314	607	239	1573	228	1747	282	649	153	265	140	201	88	109	78	29	23	5	3	104	29	5810	
																							1577	

RESUMEN DE LOS FALLECIDOS.

Varones	5810.
Hembras.	1577.
Total.	7387.

Source: AHMC, Box 251.

During the epidemic, it was essential to thoroughly control the movement of corpses, arising a local rule that regulated how these should be carried firstly by crews to the morgue that had been created and later during the night on carriages until the cemetery outside the walls of the city⁶. When a body arrived in the morgue, a gatekeeper should record an entry “accounting about the bodies received” (Providencias tomadas por el Ayuntamiento con motivo de la epidemia padecida en 1800, Caja 251, AHMC). Later, this same gatekeeper should deliver the corpses and memos where they were identified, allowing that a second gatekeeper could acknowledge receipt of them in the cemetery. A similar procedure was applied with the people deceased in the hospitals, conveyed directly to the cemetery. In general, these measures

⁶ By the second half of the eighteenth century the central government had already promulgated regulations on burials for the benefit of hygiene and public health that included the transport to cemetery outside the cities (Jori, 2013b; Fera, 2017). However, in Cadiz, before the epidemic, corpses were mainly buried in convent churches and parishes inside its small walled enclosure, and even hospitals had their own chapel or church and cemetery. Because of the epidemic, on August 24th 1800, the local authorities agreed on the utilization of the Saint Joseph cemetery, outside the walls of the city, to bury all those deceased during the pest (Pérez, 2015).

The records intended by the local government to monitor the transport of the bodies were used to elaborate a second statement, entitled *Statement of deceased* (see Illustration 2), where the daily amount of deceased coming from the morgue, the different hospitals and outside the city walls was specified, from September 20th to November 12th –when the end of the epidemic was declared. Six hundred and sixty copies of this statement were printed and delivered to the people of the city. Unlike Cadiz, in Seville, the daily information about the amount of deceased –included in the abovementioned General Statement of Seville- lacked of any specific data about the origin of the corpses.

[illegible]

Apart from monitoring the number and movements of corpses due to the epidemic, it was necessary to know how the epidemic was spreading through the city. This information would make possible a better distribution of physicians, medicines, food, alms and substances used in disinfection. The method to collect this information was suggested to the local government by a local bloodletting surgeon -Juan de Carvajal y Salazar- at the request of an ecclesiastic who previously had listened his proposal. This method seems similar to how European countries used to monitor the incidence and evolution of epidemics since the Middle Ages according to

Foucault (1999b). Juan de Carvajal y Salazar placed particular emphasis in the need for calculating on a daily basis the amount of people affected by the epidemic in each neighbourhood and its evolution:

All the doctors who treat sick people have to be divided in three thirds, attending all the nights at a fixed time on the site indicated as the sacristies of Santiago, San Antonio and San Lorenzo. All of them will deliver a signed memo reporting about the actual number of patients, the sick people's state, the treatment, the amount of them who die, heal or convalesce; in a nutshell, everything that they observe and do. This board will be chaired by the oldest one and a secretary will be designed who after collecting the memos will prepare a brief summary that he will have to deliver the following day to the Local Board so that it can be daily informed regarding the state of the epidemic and can give the orders that it considers appropriate (Cadiz, August 22nd 1800, Caja 2265, AHMC).

The municipality arranged boards of doctors aiming at obtaining a better knowledge of the sickness, the spreading of the epidemic through the city and how to cure it. Nevertheless, only the physicians ascribed to the Royal Hospital collaborated from the start in providing daily figures about sick, healed and deceased people. This fact is evident in the words added at the end of regulation that the Corregidor of Cadiz enacted about the recording duties of the local doctors and the fines in case of non-compliance “except for doctors and surgeons of the Royal Hospital, College and Army, who are already complying with their duties” (Pedro Bayón, August 28th 1800, Caja 251, AHMC). In this sense, is interesting to note that the enactment in 1739 of the Instruction for Military Hospitals –influenced by the enlightened idea of rationality and efficiency- contributed to place the emphasis of control not only on the army resources but also on the recovery of sick soldiers; resulting in a crucial role of the Controller (*Contralor*) in the information flow (Baños, 2014; Baños and Funnell, 2015). Thus, monitoring of food and medicines and censuses of sick people were two main issues that deserved even a daily control in the reports of the military hospitals. Likely, in the case of the epidemic in Cadiz, the authority that because of hierarchy could be imposed with greater effectiveness in a military environment than in a civil one, as well as the previous existence of both a rule and an accounting practice similar to the practice required, favoured the speedy collaboration of the army.

Otherwise, in the civil sphere, after the failure of the first attempt, the daily control of the number of sick, healed and deceased people was assigned to the neighbourhood commissioners, who did not attend their duties either. Despite the enactment of the Royal Order of the Council of Castile on September 5th requesting statistics based on these same data, a couple of weeks later the municipal government was still complaining about not having access to these figures, deciding to demand from the Corregidor his intervention in this sense. These days, the arrival of the new Captain-General of Andalusia and Political and Military Governor of Cadiz was expected, Tomás Morla, who effectively occupied the position on September 20th. The evidence found suggests that an effort was made to rebuild the summary of the figures about sick until September 15th, being in the end the commissioners' assistants who began to elaborate the daily records from that time onwards, allowing that the first weekly reports were presented on September 22th. By way of example, Illustration 3 shows the first card –*papeleta*– made for San Lorenzo neighbourhood, where the following handwritten note can be read: “due to the absence of my commissioner”. From this record, the amount of people who remained sick that day can be calculated: 448 sick which are transferred to the first row of the next weekly report (1,360 sick from the beginning of the epidemic less 847 healed and less 65 deceased). Once this procedure to collect data was operating in a normal way, the *papeletas* were delivered

every night to the municipal permanent accountant, Juan de la Peña y Santander, who also received similar daily reports from the religious hospitals. All these data were daily submitted to the local authorities. Illustration 4 depicts the first weekly report made for the same neighbourhood; for each neighbourhood, these weekly reports compiled the data previously collected by the daily cards.

Illustration 3. First *papeleta* made for San Lorenzo neighbourhood.

Comisaría del Barrio de San Lorenzo — al cargo de
Juan de la Peña y Santander

Noticia que dá el referido Comisario al Señor Corregidor y Junta Municipal, del progreso que ha hecho la epidemia acaecida en esta Ciudad desde principios de Agosto hasta el 15 de Setiembre, con exclusion de los enfermos que por estarlo aun en mismo día, se expresan en la razon ó nota del suyo.

<u>Enfermos.</u>	<u>Sanados.</u>	<u>Muertos.</u>
<u>1360</u>	<u>847</u>	<u>65</u>

Por ayencia del Comisario
Ramon I. Peña

Source: AHMC, Caja 251.

Illustration 4. First weekly report of San Lorenzo neighbourhood.

Noticia que dá *D. Josef Alvarez Lopez* Comisario del Barrio de *San Lorenzo* al Sr. Corregidor, y Junta Municipal, del estado y progreso de la epidemia en el de su cargo, en toda la presente semana.

Año.	Días.	Mes.	Enfermos.	Sanados.	Muertos.
continúa	15	septre	49	37	6
	16	16	47	68	8
	17	17	79	51	5
De 1800.	18	18	53	30	4
	19	19	65	36	6
	20	20	50	28	4
	21		17		
			763	251	29

Cádiz 22 de Setiembre de 1800.

Por su orden y en su nombre Comisario
Francisco Lopez

254
 33
 237
 476
 763

Comisario
 Total

Source: AHMC, Caja 251.

These weekly reports were also used to elaborate the General Statement of Cadiz, being integrated in a second chart, where the amount of people who had fallen ill from the beginning of the epidemic, and the healed, deceased or remaining sick people until the day of the report were specified for each of the neighbourhoods, religious institutions or hospitals. The requirements of the Castile Council had expanded the daily accountability system already implemented by the municipality –thanks to the involvement of neighbourhood commissioners or their assistants, parishes' priests and the directors of religious hospitals- by incorporating the superiors of convents and accountants of the army hospitals. Both religious and military hospitals submitted aggregated reports to Juan de la Peña y Santander for the elaboration of the General Statement of Cadiz. Nevertheless, the evidence suggests that, to a certain extent, a similarity existed between these aggregated reports and those elaborated by the neighbourhood commissioners: a first accountability took place around September 21st-23rd –coinciding with the arrival of the Governor- and a second one happened at the end of October. The level of detail differs depending on who is rendering accounts: whereas the religious hospitals sent the total amount of sick, healed, deceased and remaining sick people until October 31st, the military ones, on the contrary, disaggregated this same information by regiments (see illustrations 5 and 6).

Illustration 5. Aggregated statement submitted by the Women Religious Hospital (September 23rd 1800).

Como Director y Administrador Interno de este Hospital de San Juan del Carmen, q^{do} es p^{te} la curacion de P^{res} Emperora Cecilia q^{da} desde el Dia 1^o de Agosto del p^{te} año hasta el de la fecha. han entrado en este Real Convento Trezientas quarenta y tres (343) enfermas de las q^{as} curaron en suma Seenta y quatro, han fallecido ciento ochenta y quatro y han sanado Noventa y cinco

~ ~ ~ ~ ~

Resumen de arriba

Entraron 343 Sanaron 23 curaron 184 - quedan 64 enfermas

Nota. Los quatro Capellanes, varias enfermas los dos Demandantes y los dos Surcos todos estan convaleciendo. y solo muere el Regente Boticario ~ ~ ~ ~ ~

Lo q^{do} firmo en Cadix y en este Hospital hoy 23 de Mayo de 1800 ~ ~ ~ ~ ~ Maria. Placido Adm^{te} Int^o

Source: AHMC, Caja 251.

Illustration 6. Aggregated statement submitted by the Military Royal Hospital (September 23rd 1800).

En el 15 de Agosto hasta el 1.º de Sept. 1800

Atado que manifiesta los Individuos de tropa de la Guarnición de esta Plaza que desde 15 de Agosto último hasta 23 de Septiembre han entrado, Salidos, y Fallecidos en este H^o Hospital en la forma siguiente

Desde 15 de Agosto hasta 31 del mismo				Desde 1.º de Septiembre hasta 23 del mismo			
Cuerpos Militares	Entrados	Salidos	Muertes	Entrados	Salidos	Muertes	
Artillería	20	22	19	126	89	76	
Infantería	36	12	11	30	12	22	
Carabineros	2	12	2	5	10	2	
Artillería	12	2	5	26	12	12	
Carabineros	22	20	2	3	14	1	
Artillería	122	30	25	400	190	131	
Infantería	12	7	1	26	40	26	
Carabineros	22	10	2		6	2	
Artillería	24	12	32	1	10	20	
Carabineros	21	15	10	1	2	6	
Artillería	2	1	1	1	3	2	
Carabineros	103	32	44	205	110	86	
Artillería	10	20	1		1	1	
Carabineros	11	5	6	1	3	2	
Artillería	20	35	3	1	2	1	
Carabineros	6	16			2		
Artillería	2	12	2	12	10	17	
Carabineros	12	3	2	50	3	17	
Artillería	12	2	3	17	4	12	
Carabineros	2	5	1	12	10	8	
Artillería	2	1	2	7	5	2	
Carabineros	3	1	1	4	6	1	
Artillería	1	1	2	7	5	2	
Carabineros	1	2	1	3	2	1	
				1		1	
Total	722	427	177	1535	634	333	

Hospital de San Carlos de Madrid 23 de Septiembre de 1800 = Sumados = Vase Abolados = Pape.

Source: AHMC, Caja 251.

Information about sick, healed and deceased people was presented in a chart by introducing particular criteria of aggregation. The way the data were presented allowed to obtain a first subtotal referred to people who had not been attended in any hospital, resulting a total of 41,157 sick people, 37,016 healed persons, 4,031 deceased and 110 convalescents. The General Statement of Cadiz itself highlighted that these people had relied on municipal aid. The second part of the chart referred to the patients treated in each of the hospitals. Lastly, the following totals were obtained for the complete population: 48,250 sick people, 40,776 healed persons, 7,387 deceased and 317 convalescents out of an initial population of 57,499 without considering people who had emigrated because of the epidemic (see Illustration 7). In the case of Seville, its General Statement also provided statistics about sick people, healed and deceased persons. However, both the arrangement of the data and the discourse were more focused on the area of the city to which the data referred than on the differentiation between people attended and not attended in hospitals.

Illustration 7. Statistics of sick people included in the General Statement of Cadiz.

Estado general de las Personas invadidas de la Epidemia padecida en esta M. N. y L. Ciudad de Cádiz, desde los primeros días del mes de Agosto, hasta el 31 de Octubre de 1800: de las restablecidas, fallecidas en la referida fecha, y de lo demás que para mejor instrucción se expresa por notas á contin.

Numeros y Nombres de las Comisarias.	Enfermas.	Restables.	Fallecidas.	Existentes.	Total.
1 Mundo Nuevo.	3227	2859	368		3227
2 Santiago.	1495	1367	127		1495
3 S. Antonio y Bendic. de Dios.	3494	3179	322		3494
4 Santa Maria y la Merced.	2831	2578	191	68	2831
5 Cuna.	1047	988	124	1	1047
6 San Felipe Neri.	1098	1058	173		1098
7 Cruz de la Verdad.	2107	2058	209		2107
8 Ave Maria.	3579	3254	321	4	3579
9 San Lorenzo.	1790	1649	131	10	1790
10 Barrio Nuevo de Sta. Cruz.	2548	2389	213	3	2548
11 Capuchinos.	2428	2256	168	4	2428
12 Nuestra Señora del Pilar.	1422	1252	168	2	1422
13 Nuestra Sra. de Candelaria.	1493	1352	138	3	1493
14 Viña.	3280	3155	365		3280
15 Nra. Sra. de las Angustias.	1591	1391	209	1	1591
16 San Roque y Boquete.	2058	2018	221	3	2058
17 Nuestra Señora del Rosario.	1554	1368	186		1554
18 Puerta de Tierra y Puntales.	670	500	160	10	670
Comunidades de Religiosos y Comensales de ellas.					
San Francisco con inclusion de un familiar del Sr. Obispo de Buenos Ayres.	101	74	27		101
Descalzas idem de un Padre ex-Jesuita.	61	46	15		61
Capuchinos idem de un Clerigo Enrizado.	65	47	19		65
Mixed Descalzas id. de un Religioso Gordiano.	39	40	12		39
Carmen Descalza.	39	25	5		39
Santa Dominga.	43	42	1		43
San Agustin, incluso un Eclesiastico Enrizado.	55	49	6		55
San Juan de Dios.	61	53	8		61
Clerigos de San Felipe Neri.	14	13	1		14
Idem de Religiosas.					
Concepcionistas Descalzas.	44	44			44
Idem Calzadas de Santa Maria.	73	72	1		73
Agustinas advocacion de nuestra Señora de Candelaria Colegio.	57	55	2		57
S. Bartolomé.	7	5	2		7
Santa Cruz.	21	19	2		21
Establecimientos Píados.					
Casa grande de Viudas.	92	90	2		92
Idem antigua.	22	21	1		22
Idem de Recogidas.	9	8	1		9
Idem de Expositos.	92	27	65		92
Idem de Misericordia.	577	509	68		577
Familia del Hospital de Mujeres.	18	10	8		18
Hospitales de Misericordia.					
En el de San Juan de Dios.	41157	37016	4031	110	41157
En el Hospital de Mujeres.	2107	912	1029	166	2107
Idem Reales.					
En el de esta Plaza.	43694	38053	5344	317	43694
En el provisional de la segunda Aguada, extramuros, desde el día 9 de Septiembre que se puso en uso.	4205	2361	1808	36	4205
TOTALES.	621	362	255	4	621
	48520	40776	7387	357	48520

Source: AHMC, Caja 251.

This second chart facilitated that the General Statement of Cadiz provided a more extensive analysis. Thus, on the one hand, this document placed the emphasis in the relation between people who remained free of infection and the total population (15%) and the value for this ratio in Seville (5%), attributing the success to the better urban-planning and weather conditions of Cadiz. Factors that should have benefitted Cadiz such as “the better pavement, streets alignment and location” were mentioned. On the other, the discourse provided a comparison between the ratio deceased/sick people for Cadiz population who had remained in their home and the same ratio for people attended in hospitals, resulting a lowest and better ratio for those who remained at home and received municipal aid than for the hospitals –religious or military-. See the following paragraph extracted from the General Statement of Cadiz.

We must admit that fast and successful support provided by the municipality to the poor neighbourhood consisting of substances, medicines, doctors and even money has only been able to reduce the number of victims (that would otherwise have been of the epidemic) to 9 and 7/8 per cent, as is evident in the 4,031 deceased that there have been in the 17 neighbourhoods of the city out of 41,157 sick people: for although it is true that including the hospitals, the deceased/sick persons ratio reached 16%, it is also a fact that

each hospital reached individually the following figures, San Juan de Dios 48.75%, Women Hospital 61.25%, Royal Hospital 43% and the Provisional Hospital of Segunda Aguada 40.5%, whose aid, given by the Local Government, others provided by the Traders Association and a huge amount by their neighbours [...].

As can be seen in the former paragraph, the kind of help (substances, medicines, doctors and money) as well as the origin of the funds, by emphasizing the generosity of the Trade Association and the neighbours, was explained in order to underpin the argument. These facts were completely demonstrated by the accounts of the treasurer Fermín Elizalde and the municipal employee Sebastián Toso –below mentioned-. These accounting records showed both the allocation, predominantly for the purpose of home care and non for hospital assistance, and the concrete use of the money through the time. The General Statement of Cadiz referred to the sources from where the data had been obtained:

Lastly, for you trust both demonstrations [about deceased and about sick, healed and deceased people], is added, that the data for the statistics has been the more authentic and authorized, on the one side, received from parish priests, commissioners [from each neighbourhood], superiors of convents and religious hospitals, and on the other extracted from the statements *ex officio* sent to His Excellency Governor of the city by the respective accountants of the Royal Hospital and the Provisional Hospital of Segunda Aguada.

Funds collected and the aid distribution during the epidemic

All the aid provided would have been impossible without a fund-raising campaign that allowed collecting more than sufficient funds. This is so true that a year after 21% of the money raised was distributed among several religious institutions. The treasurer and accountant Fermín de Elizalde was responsible for the administration of the funds. He had accumulated experience carrying out the same position in the charitable institution called Relief Board since 1798. As the treasurer of the Relief Board he had to monitor and record both all the alms received and the different kinds of aid allocated. He used to account weekly to the governing body of the Relief Board for the existing liquidity and the time that the institution could continue working with that money. Besides, this charity published periodically its accounts so that the public knew the use of the funds and increased their alms (Araújo, Capelo and Núñez, 2019).

The General Account that Fermín de Elizalde gave to the local government seventeen months after the extinction of the epidemic is preserved in the AHMC. This document explained the source and kind of each of the donations received, by distinguishing among donations in cash and in government bonds. On the one side, benefactors such as the City Council, the Ecclesiastical Council and the Trade Association were highlighted in this account. On the other, the entries made in this account recorded the different deliveries of money to priests, directors of charities and to the municipal employee Sebastián Toso⁷ who previously had payed roughly 50% of the expenses provoked by the epidemic (134,222 *reales de vellón* out of 270,960).

The information about the expenses of the epidemic is much more specific in the accounting records made by Sebastián Toso, as can be seen in the account that he delivered to the local

⁷ In his will draw up in Cadiz in 1818, Sebastián Toso stated that he owned “a capital of 45 or 46 thousand *reales of vellón* in cash; acquired thanks to his great economy when carrying out different commissions for the City Council” (italics added; Bundle 3871, Disposiciones Testamentarias de Cádiz, AHPC, pp. 1496-156).

government on January 20th 1801: *Expenses of the epidemic from August 20th to December 31st 1800 to pay with the funds collected*. This document provided with a chronological detail of the payments made, by distinguishing four different categories or kind of expenses: (i) Doctors and pharmacists, (ii) Meat, water, vegetable stew, salt, coal, firewood and employees involved in the delivery of broth among poor sick people, (iii) Tools and alms for the poor sick people in the Royal Prison and (iv) Alms in cash distributed both to hospitals and to poor people of the neighbourhood with the collaboration of their parish priests (Table 1 shows the amount spent in each of these categories). A similar practice based on the classification of expenses according to their nature had been already used in the 18th century by the Santa Marta Hospital, a charitable institution whose mission was to feed every day about 45-50 poor people (Hernández, 2015). For each of the items, the account of Sebastián Toso reported on the date, kind and quantity of aid provided, person who received the payment, receipt number amount of money paid. The name of the neighbourhood, parish or institution where the aid was distributed was also specified. Illustration 8 shows the final part of the entries about the expenses made in “Doctors and pharmacists”. As can be seen in the upper part of the image, one of the entries referred to: “137 prescriptions that Mr. Sebastián Cándido Izquierdo dispensed for the poor people of Santa María neighbourhood that amounted to 1,331 *reales de vellón* ¼ that, after dropping 1/3, were paid according to receipt number 475, 888 *reales de vellón*”. These records are interesting due to a couple of reasons. On the one hand, attending to the emphasis on quantifying the support provided, by indicating the amount of prescriptions as well as the loads of wood, coal or beef when food was the kind of aid delivered. The assistance character of the expenses could have influenced on this interest; in a similar way, Hernández (2015) also evidences how the accounting recorded the number of rations distributed in the Santa Marta Hospital. On the other, these records allow to identify more than twenty health professionals appointed for the assistance of the neighbourhood, many of whom were physicians –fourteen-. Additionally, eleven chemists were recorded in this account.

Table 1. Expenses in different kind of aid.

CONCEPT	AMOUNT in <i>reales de vellón</i> %	
Doctors and pharmacists	65,535	48.57
Meat, water, vegetable stew, salt, coal, firewood and employees involved in the delivery of broth among poor sick people	38,027	28.18
Tools and alms for the poor sick people in the Royal Prison	4,740	3.51
Alms in cash distributed both to hospitals and to poor people of the neighbourhood with the collaboration of their parish priests	26,620	19.73
TOTAL <i>reales de vellón</i>	134,922	

Source: AHMC, Caja 251.

Illustration 8. Account of the expenses caused by epidemic of 1800.

1800.		Suma de la vuelta	N.º		6308 1/2
Día 29	Al S.º D.º Capetane Maria de Huarte para pagar a varias facultativas que asistieron a las enfermas del Hospital de Mujeres, cuyos nombres y cantidades estan expresadas en el recibo de dho. Señor.	N.º 398...	1100		
31.	Por 137. reales q. pagó el D.º Sebastian Cárdenas pagando para las pobres del Puerto de María q. importaron 1331. y 1/4 de que rebajada la 1/3 parte se le pagaron seg. su rec.º N.º 476.	998.			
	Pagado a D.º Vicente Amago, Médico que suplió a D.º Nicasio Ygaraburu. 23. dias en la asistencia a las pobres de la A.º Cónsul a raxon de 20. L.º char segun su recibo del día 13 del pres. N.º 202.	460.	3	65.535.12	
<p>Carnes, agua, miniestras, sal, carbon, leña, y empleadas en el reparo de calderas a las pobres enfermas.</p>					
<p>Setiembre</p>					
Día 11.	Por 142. L.º de baja a Manuel Salenzuela segun cuenta del S.º D.º Fermín Elizalde del 6.º de Diciembre señalada con el N.º...	507...	601.14.		
1	Los reales de las empleadas en el reparo y cuidado de las calderas en la calle de Pasquien, Calle de las Descalzas y Pina del cargo de D.º José Rodríguez Butrin y seg.ª Cuenta de Bernabe Ferrer N.º 423...	105.			
.	Das ollas de cobre entregadas al P.º Curasen y certaron segun recibo...	N.º... 419...	200.		
.	Los Empleados de este día seg.ª C.ª de Ferrer N.º 423	115.			
.	35. qq. de leña y su conduccion seg.ª la de Luis Torregio	245.			
			1266.14.	65535.18	

Source: AHMC, Caja 251.

The integration of accounting discourse regarding the epidemic of 1800 in the contemporary publications

The yellow fever epidemic of 1800 sparked great interest at a national and international level, resulting in the emergence of a huge amount of bibliography sometimes promoted by the competent authorities and at other times fostered by the burgeoning medical profession. Three contemporary national publications are considered below in order to evidence how these documents incorporated the quantitative information collected in Cadiz during the epidemic.

On the one hand, worthy of note is the Sacred Prayer of Thanksgiving (*Oración sagrada*) said on November 12th 1800 after the extinction of the epidemic in Cadiz was known. Although this celebration was initially promoted and funded by the governor and the City Council, the bishopric collaborated holding it and covering the cost of publishing its 38 pages. The text had a first part, the First Mercy (*Primera Misericordia*), where, a rational perspective was incorporated when the Cathedral representative thanked God's mercy by saving the people from the death. For demonstrating the greatness of his works by assisting Christians during the epidemic, the number of sick, healed, deceased and convalescent people extracted from the General Statement of Cadiz were explicitly mentioned. The prayer referred the listeners or readers to the "information that every day was received and exists in the archive of the City Council". God's power was also praised through references to the helplessness of the doctors of the city, who despite their science, were unable to curb the epidemic. The prayer continued by explaining the efforts made by the municipality, original sponsors of the discourse. Details were provided related to both how the City Council had obtained funds –highlighting the collaboration of the Trade Association and the Ecclesiastical Council- and the way they had been expensed. The essential collaboration of the Church was also explained with references to how it encouraged for giving alms and facilitated their distribution through the parishes themselves and religious institutions such as the Home Hospital Care.

On the other hand, Pedro María González, assistant of the Royal Navy Surgeon-Major, published in 1801 his Dissertation on the malign contagious fever that pervaded Cadiz in the year of 1800 (*Disertación sobre la calentura maligna contagiosa que reinó en Cádiz el año de 1800*). This text highlighted the efforts of the municipality and especially the contribution of Trade Association:

The political government was reduced to the municipality; whose activity and surveillance make it deserves not only the highest praise, but also the public gratitude and respect. Poor people were assisted with food, medicines and doctors thanks to its dedication and its own cost [...] Indeed, the municipality called for the compassion of wealthy people in favour of the needy: answering its call, the Trade Association opened its funds and rich citizens gave considerable amounts (p. 15).

However, the text was mainly a plea in defence of all the medical profession involved in the epidemic, blamed for not having sufficiently committed to the care for the sick. He compared the amount of deceased in Cadiz –roughly 10,000- with the higher amounts calculated for other cities such as Jerez and Seville, emphasizing that only half of the people who died in Cadiz should be accounted as inhabitants of the city, with the rest belonging to the army. He also stressed the necessity to empower the doctors in the event of future epidemics, as well as the need for obtaining daily individual and exact data regarding the occurrences of the day when the disease was contagious, aiming at impeding its spread to the rest of the city.

In a similar way, Joaquín de Villalba, first assistant of the Army Surgeon-Major, lecturer of medical-surgery and professor in the Royal School of Veterinary, published in 1802 its work entitled Spanish Epidemiology with a chronological history of the pests (*Epidemiología española con historia cronológica de las pestes*). On this occasion, the author started by praising the kind of aid provided by the City Council and the important contribution of the Trade Association. Then, he continued by explaining the difficulties that the doctors faced to attend the sick people, diagnose them and find a treatment for the epidemic: “entire families bedridden because of the epidemic lacked of any kind of assistance and comfort: being the hospitals inundated with patients, it was impossible to find a doctor who could attend them” (p. 310). After these explanations, the figures provided by Pedro María González about the amount of people deceased in Cadiz, Seville and Jerez are quoted. The author enquire himself in the municipal archive of Cadiz finding that

In fact, in the municipal archive of Cadiz there exists information for perpetual remembrance that indicates that the number of sick stricken from the beginning of August, when the epidemic started, until early November, when the pest was extinct, was 48,688; the number of the healed people 40,694; and the number of the deceased persons in the city, including the hospitals, religious institutions and charities, 7,292. As a result, on November 1st, 702 people remained sick and convalescents (p. 314).

Villalba continued stating that the “*inexact records* of the city of Seville” [italics added] only informed of 14,000 deceased, whereas trustworthy people “belonging to the medical, ecclesiastical and secular sectors” had assured that the amount of deceased would exceed 22,000.

Analysis and conclusions

The business significance of Cadiz at the time and its consequent cosmopolitan nature meant that everything that happened in its territory had important immediate effects at national and international level. In the particular case of the first yellow fever epidemic, this relevance made local health authorities and professionals being in the spotlight of the national government, other local and foreign governments, as well as of the traders with interests in the city and even citizens in general. In Cadiz there were also other factors that, together, were the breeding ground for the type of information produced and disseminated and its subsequent incorporation in contexts and discourses outside its initial motivation: the enlightened nature of its people, its familiarity with accounting, its incipient taste for the voluntary disclosure of accounting information related to non-commercial activities (Araújo, Capelo and Núñez, 2019) and the increasing power of the Trade Association in the municipal government (Bustos, 2017).

As Walker (2000, p. 8) states, crisis “may be understood as contingencies which incite accounting change”. Because of the epidemic crisis, in Cadiz health statistics emerged, extending these practices from military hospitals, where they seem to have been developed ex officio, to different neighbourhoods, religious communities and pious hospitals, causing the contagion effect, not only of the disease, but of the accountability. The medical and accounting know-how together with the seriousness of the situation contributed to make the most of the records kept in hospitals within the scope of the local government, hence forming part of the information daily collected by the government for decision-making. The work of the local Church’s members was crucial; following a behaviour similar to that indicated by Lightbody (2000), in this particular socio-cultural context they assumed functions that extended beyond

their traditional spiritual role by participating in the new accounting system oriented to municipal management.

Two accounting books allowed authorities to monitor the donations received and their use. The treasurer appointed by the City Council, who was already familiar with the accounting of non-profit activities, had to intervene to ensure that these books captured with great detail both the type of aid distributed and the individuals and institutions that participated either by exercising their profession/activity or by giving donations. However, in a context of municipal surplus, the accountability focused on financial matters and performed by the treasurer and his delegate were placed in the background, delaying it until the extinction of the epidemic and giving priority to the timely and accurate control of public health. Although applied to health information, there were also practices for disclosing information extracted from records kept by accountants that resemble those previously used by contemporary local charities (Capelo, 2014; Araújo, Capelo and Núñez, 2019; Capelo and Araújo, 2018).

Confronting a major public health problem, accountability to the central government and the general public prevailed over intra-municipal accountability. The accounting mindset of those who participated in the elaboration of the General Statement about the effects of the epidemic together with the business setting where the problem was generated and addressed deeply influenced how the City Council accounted for the effects of the epidemic. The existing habit in the city of preparing accounting statements to obtain support for charities also had a strong influence in this sense (Capelo, 2014; Araújo, Capelo and Núñez, 2019). Thus, far from merely being demographic and health statistics, the document was prepared and presented under an accounting perspective that allowed focusing on the most interesting aspects for the local government. A clear distinction was made between the population cared at home, supported by municipal funds, and the hospitalized people, financed with other resources. The strategy followed in the aggregation of the information facilitated the calculation and analysis of ratios that evidenced the greater effectiveness of the City Council, so deliberately constructing a discourse that, based on comparisons, endorsed its actions and performance. The accounting records contributed to complete the discourse, especially favouring the City Council and the Trade Association members. Likewise, the accountability process itself organized to facilitate the collection of demographic and health data was used to add value to the document presented.

In this sense, authors as Brennan and Merkl-Davies (2014) and Gauthier and Kappen (2017) identify that organizations base their discourses on rhetoric strategies appealing to their authority, character, and credibility, to arguments' logic and rationality, and even to emotional responses of the audience. The research evidence suggests the use of a discourse that appealed to rationality and accounting logic to legitimize municipal action. However, these details, figures and arguments used by the local government were also applied later in other contexts. The evidence shows how the local Church incorporated in its thanksgiving discourse data extracted from both health records and accounting records, thus mixing ideas based on rationality—provided by accounting—as well as on the emotion and feelings of believers, hence sustaining the authority of the Church: from a spiritual point of view, these references served to reveal the greatness of the tragedy, to expose the helplessness of science in the face of disease and ultimately to reinforce the power of God, who finally saved the population from such a disaster. From a more earthly perspective, a discourse was built to benefit all the spheres of power that had collaborated: the City Council, the Trade Association and the Church itself as collector and manager of alms.

Finally, the medical literature that was published immediately after the epidemic evidences that the accounting records and arguments were also used to defend an incipient medical profession that needed to reconcile with its city and restore its image. To do this, on the one hand, the profession demonstrated its involvement in combating the epidemic and its effects by recovering details extracted from the accounting about the types of aid offered and how this collaboration was funded. On the other, following the practice introduced by the local government, they disaggregated the health figures to analyse them, to establish comparisons and ultimately to defend the profession. In a clear identification with the prevailing mindset in the city, they were proud of the existence and accuracy of the archives. In this case, it is noticed that accounting was used by the medical profession to help repair and build legitimacy, damaged during the epidemic according to citizen perception.

In summary, this research illustrates the emergence of an *ad hoc* municipal registration system in the context of a major public health problem, and suggests that, in line with Sargiacomo (2015), this system was built on the basis of existing practices and know-how of the different professions that coincided in its management. The transfer of accountability practices from hospitals and doctors to the municipal government is evident. In a similar way, the transfer of both accounting practices and persuasion from charities to municipal government is also revealed. The system was socially constructed, incorporating not only social and cultural rules (Miller, 1994), but also elements derived from more particular interests (Covaleski and Dirsmith, 1988; Covaleski, Dirsmith and Michelman, 1993). In this sense, there is clear evidence that the accounting heritage of this first order port city broke into the municipal environment, not only with accounting books and the generalization of accountability, but also in the form of its own discourse. This discourse was later appropriated by the local Church and the reviled medical profession, who, in turn, reworked it in defence of their respective interests and social positions. In the analysed setting, the very existence of an accounting of what happened gave value to these discourses since accounting helps to build reality (Merkl-Davies and Brennan, 2017) offering visibility and interpretations of social and economic events (Ezzamel, 2002).

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